Load cell exchange vs. on-site calibration

A PRACTICAL GUIDE TO QUICK RELEASE HOOK MAINTENANCE SOLUTIONS

Evaluating maintenance strategies for safer mooring operations

Accurate monitoring of mooring line loads is essential for maintaining mooring safety, optimizing operational efficiency, and ensuring compliance with industry standards. Load cells integrated into Quick Release Hooks (QRHs) provide real time critical tension data, enabling intervention under overload or slack conditions.

Trelleborg offers two distinct maintenance solutions: the Load Cell Exchange Program and Traditional On-Site Calibration.

This document compares both approaches, highlighting their respective advantages and helping terminal operators choose the most suitable method based on operational priorities.

Contents

Overview of each solution

Industry guidance distinguishes full-range calibration from partial-load output checks. In practice, some approaches described as calibration focus only on partial-load checks, which do not meet the full scope defined by industry expectations. According to PIANC WG 231 and SIGTTO's Jetty Maintenance and Inspection Guide, true calibration requires full-range testing with traceable standards. Terminal and vessel operators should insist on certified, full-range calibration aligned with recognized guidelines, including global standards such as OIML R60, ISO 376, and DNV-ST-0378. Partial load checks may not fully reflect system performance across all operational conditions, which could affect safety and compliance.

TRELLEBORG LOAD CELL EXCHANGE PROGRAM

- Annual delivery of factory-calibrated load cells to the site.
- Quick swap-out of existing units.
- Removed load cells are returned to Trelleborg factory for calibration or replacement.
- Optional on-site support from Trelleborg engineers.

TRELLEBORG LOAD CELL EXCHANGE PROGRAM – KEY ADVANTAGES

- Minimal downtime - quick swap ensures fast return of QRHs to service; exchange loadcells can be fitted to multiple units at a time.
- Flexible scheduling – can be completed independently of Trelleborg technician availability or calibration equipment.
- Guaranteed outcome – faulty or damaged load cells or load cell cables are replaced by default.
- Cost certainty – subscription-based model reduces unexpected expenses.
- No extra costs for stop / starts (unsupervised installation only).
- No costs to replace failed loadcells or damaged cables
- No on-site equipment or expertise required.
- Factory-calibrated accuracy – performed under controlled conditions.

TRELLEBORG ON-SITE CALIBRATION

- On-site calibration using calibrated equipment.
- Load cells tested across multiple points (e.g., 0–100% of SWL).
- Adjustments are made to load cell outputs or instrumentation set points.
- Requires trained personnel and equipment or Trelleborg site service engineers.

TRELLEBORG ON-SITE CALIBRATION – KEY ADVANTAGES

- Can be simpler for customs in countries where importing refurbished equipment, such as load cells, is complicated. (temporary import, Carnet, etc)
- More cost-effective option for non-standard load cell designs

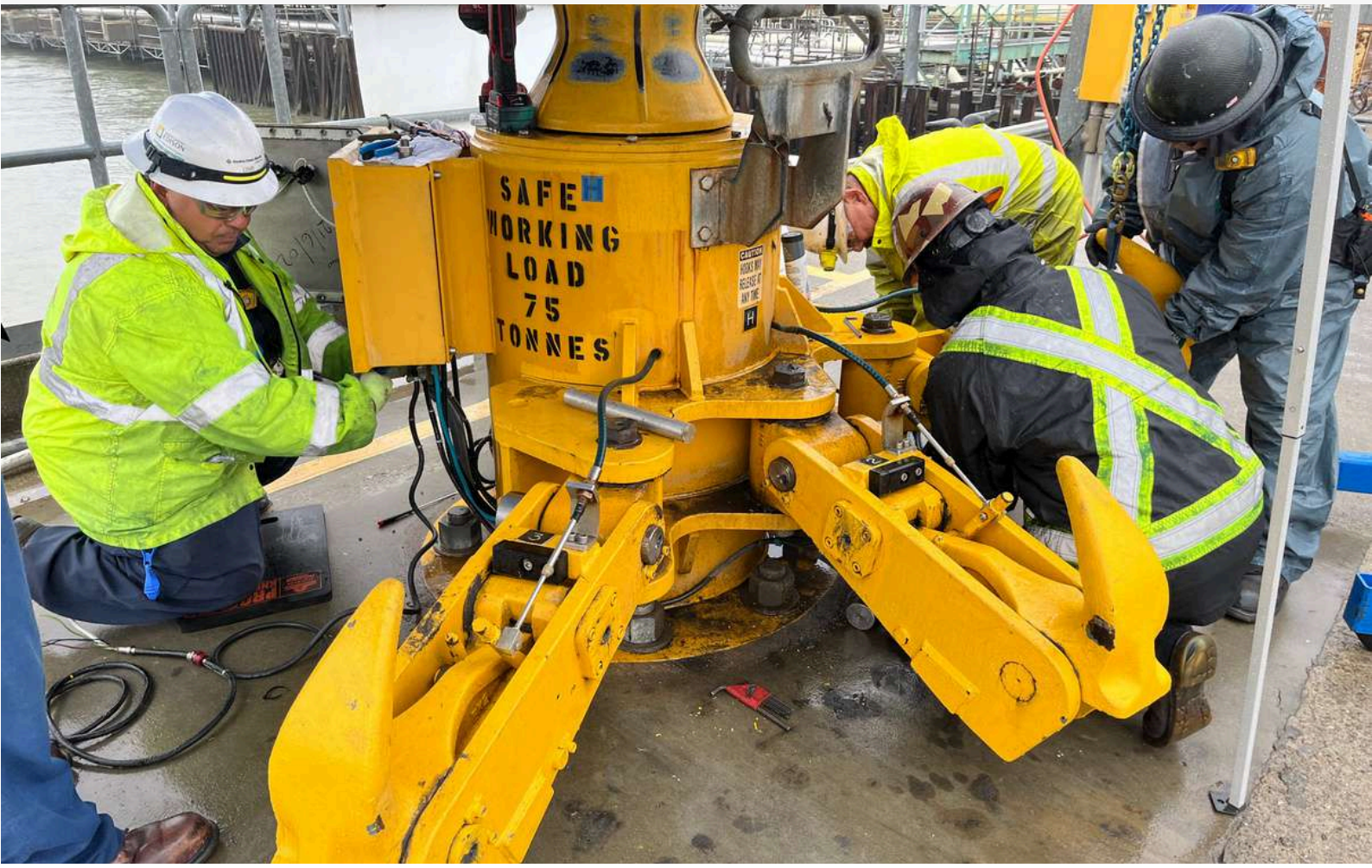
Choosing the right approach

LOAD CELL EXCHANGE IS IDEAL FOR TERMINALS THAT:

- Require minimal downtime, with fast, multi-unit swaps.
- Need flexible scheduling independent of technician availability.
- Prefer a guaranteed outcome, with faulty load cells and damaged cables replaced by default.
- Want cost certainty through a predictable, all-inclusive subscription model.
- Operate without on-site calibration equipment or technical personnel.

ON-SITE CALIBRATION IS IDEAL FOR TERMINALS THAT:

- Face customs constraints (e.g., temporary imports, Carnet requirements).
- Seek a lower-cost option when supervised calibration is already planned.
- Use custom-designed load cells for which exchange is not supported.



Conclusion

Both the Load Cell Exchange Program and Traditional Calibration meet SIGTTO and OCIMF guidelines for annual QRH load cell calibration, and align with global calibration standards such as OIML R60, ISO 376, and DNV-ST-0378.

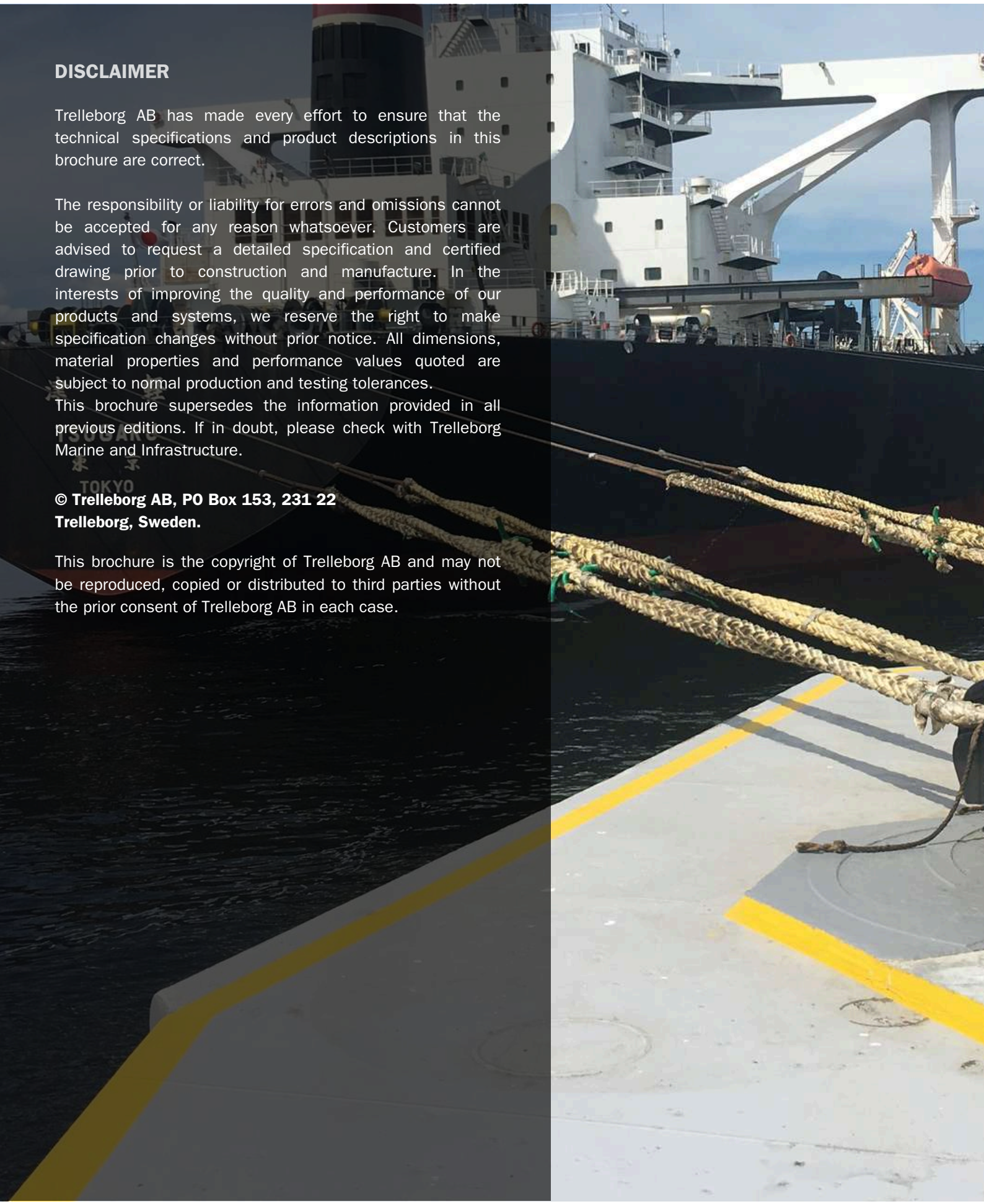
- Choose Load Cell Exchange Program for speed, simplicity, and guaranteed results.
- Choose On-Site Calibration, where logistics make it difficult and costly to ship exchange transport load cells to and from Trelleborg factories and where shipping schedules allow for a larger window to complete calibration and where exchange programs don't support non-standard load cells.

Trelleborg supports both approaches, ensuring terminals can meet compliance standards and maintain safety with confidence and efficiency.

DISCLAIMER

Trelleborg AB has made every effort to ensure that the technical specifications and product descriptions in this brochure are correct.

The responsibility or liability for errors and omissions cannot be accepted for any reason whatsoever. Customers are advised to request a detailed specification and certified drawing prior to construction and manufacture. In the interests of improving the quality and performance of our products and systems, we reserve the right to make specification changes without prior notice. All dimensions, material properties and performance values quoted are subject to normal production and testing tolerances.
This brochure supersedes the information provided in all previous editions. If in doubt, please check with Trelleborg Marine and Infrastructure.



TRELLEBORG

Trelleborg is a world leader in engineered polymer solutions that seal, damp, and protect critical applications in demanding environments. Its innovative solutions accelerate performance for customers in a sustainable way.

Trelleborg Marine and Infrastructure is a leading provider of premium solutions for critical marine, port, and built infrastructure applications. Its innovative polymer and smart technology solutions enhance operational efficiency, safety, and sustainability.

WWW.TRELLEBORG.COM/MARINEANDINFRASTRUCTURE

Linkedin: Linkedin.com/company/trelleborg-marine-and-infrastructure
YouTube: Youtube.com/c/TrelleborgMarineInfrastructure
Facebook: TrelleborgMarineandInfrastructure

Trelleborg Marine and Infrastructure
Email: marine_infra@trelleborg.com